

NEW OR NOTEWORTHY DRABA (BRASSICACEAE)
FROM SOUTH AMERICA

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Four Colombian species, *Draba boyacana*, *D. cocuyana*, *D. pseudocheiranthoides*, and *D. ritacuvana*, are described as new. Two new names, *D. argentifolia* and *D. ecuadoriana*, are proposed to replace the later homonyms *D. argentea* O. E. Schulz and *D. affinis* J. D. Hooker, respectively.

Draba L. is the largest genus of the Brassicaceae, with about 350 species distributed primarily in the Northern Hemisphere (Al-Shehbaz, 1987). There are at least 75 species in South America that grow at high elevations from Colombia and Venezuela southward along the Andes to Patagonia.

During the past several years, I have been working on a revision of the South American species of *Draba*. In this continent the genus is more highly diversified in habit and morphology of its species than elsewhere in the world. There are many undescribed drabas in South America, and the nomenclature of several species is problematic. In the present paper, four new species are described and two new names are proposed.

Draba argentifolia Al-Shehbaz, nom. nov.

Based on *Draba argentea* O. E. Schulz, Pflanzenr. IV. 105(Heft 89): 134. 1927, non *D. argentea* (All.) Lam. Encycl. 2: 329. 1786.

A close examination of *Draba argentifolia* and *D. pickeringii* A. Gray supports Schulz's (1927) view that the two species are indeed very closely related. However, the latter species has slender styles ca. 1 mm long, fruiting pedicels 4–6 mm long, petals 4–5 mm long, fruits 4–6 mm long, and valves primarily covered with simple trichomes. In *D. argentifolia* all these structures are clearly shorter than those of *D. pickeringii*, and the fruit valves are covered with furcate and stellate trichomes.

Draba boyacana Al-Shehbaz, sp. nov.

FIGURE 1.

Herba perenna pusilla. Caulis erectis vel ascendens, 2.5–9 cm longa, pilis crispis simplicibus vel stipitato-furcatis. Folia basalia rosulata, obovata vel spathulata, acuta, 2-dentata, ciliata, sessilia, superne hispida, pilis rigidibus subappressis simplicibus usque ad 1.4 mm longis et brevioribus stipitato-fur-

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FIGURE 1. Holotype of *Draba boyacana*. Scale bar = 1 cm.

catis, inferne glabrescentia, 7–23 mm longa, 4–8 mm lata; folia caulina 2–5, sessilia, oblonga vel ovata, 5–8 mm longa, 1.5–3.5 mm lata. Inflorescentia corymbosa, ebracteata; pedicelli fructiferi divaricati, 3–5 mm longi. Sepala ovata, erecta, nonsaccata, 3–3.5 mm longa, 2–2.5 mm lata. Petala alba, obovata, cuneata, 5–6 mm longa, 2–2.5 mm lata. Siliqua elliptica vel sub lanceolata, compressa, glabra, 7.5–8.5 mm longa, 3–3.5 mm lata; stylus 0.6–0.9 mm longus. Semina matura ignota.

Small perennial herbs. Stems erect to ascending, 1 or few from base, unbranched, 2.5–9 cm long, crisped pubescent with mixture of simple trichomes and shorter, stalked, furcate or substellate ones. Basal leaves forming rosettes, sessile, obovate to spatulate, 7–23 mm long, 4–8 mm wide, acute at apex, cuneate at base, 2-toothed, ciliate, the upper surface hispid with mixture of long, simple, subappressed trichomes to 1.4 mm long and fewer much shorter, stalked furcate ones, the lower surface glabrescent. Cauline leaves 2 to 5, sessile, oblong to ovate, 5–8 mm long, 1.5–3.5 mm wide, entire, pubescent on both surfaces (or only on the upper) with mixture of simple and stalked furcate or substellate trichomes. Inflorescences ebracteate, corymbose racemes, slightly elongated in fruit; fruiting pedicels divaricate, 3–5 mm long, pubescent. Sepals erect, ovate, nonsaccate, 3–3.5 mm long, 2–2.5 mm wide, membranaceous at

margin, pubescent. Petals obovate, cuneate, not clawed, 5–6 mm long, 2–2.5 mm wide, white. Filaments erect, dilated at base, 2.2–2.5 mm long, white; anthers ovate, ca. 0.6 mm long. Nectar glands confluent, low, subtending bases of all filaments. Fruits elliptic to sublanceolate, flattened parallel to septum, 7.5–8.5 mm long, 3–3.5 mm wide, glabrous; styles slender, 0.6–0.9 mm long. Mature seeds not seen.

TYPE. Colombia, Depto. Boyacá, Sierra Nevada del Cocuy, in paramo below Ritacuva glacier, 4300 m alt., 5 Aug. 1957, *P. J. Grubb, B. A. B. Curry, & A. Fernández-Pérez 303* (holotype, US!).

ADDITIONAL SPECIMEN EXAMINED. Colombia. DEPTO. BOYACÁ: Sierra Nevada del Cocuy, Alto Ritacuva, *Barclay & Juajibioy 7485* (MO).

Draba boyacana, which grows on peat at the base of *Espeletia* Mutis plants or on moraines above the *Espeletia* stands (4300–4500 m alt.), has no close relatives among the northern South American drabas. Of the 11 Mexican and Guatemalan species (Rollins, 1984), only *D. helleriana* Greene bears some superficial resemblance to *D. boyacana*. However, the latter has white instead of yellow flowers and is quite different in leaf morphology and pubescence, as well as in habit and inflorescence. Perhaps the nearest relative of *D. boyacana* is *D. magellanica* Lam., a species widely distributed in Patagonia (Boelcke, 1984). From that, *D. boyacana* is easily distinguished in having glabrous rather than pubescent fruits, few- instead of many-flowered inflorescences, confluent instead of no median nectaries, and primarily simple or furcate as opposed to stellate leaf pubescence.

***Draba cocuyana* Al-Shehbaz, sp. nov.**

FIGURE 2.

Herba perenna suffruticosa caudicibus simplicibus vel ramosis. Caules lignosi, 4–8(–20) cm longi, inferne petiolis bruneis, foliorum emortuorum adpressis imbricatis indurati, superne dense foliati. Folia caulina integra, oblonga vel ovata, imbricata, glabrescentia, ciliata, 3–8(–10) mm longa, 2–3 mm lata. Racemi corymbosi ebracteati; pedicelli fructiferi divaricati, 4–9(–11) mm longi. Sepala oblonga, subsaccata, 4–5 mm longa. Petala obovata, flava, 6–7 mm longa, ca. 3.5 mm lata. Siliqua elliptica vel subovata, compressa, glabra, (6–)8–12 mm longa, (3.5–)4.5–5.5 mm lata; stylus 1.5–2.7 mm longus; semina brunnea, compressa, ovata, reticulata, 1.6–1.8 mm longa, 1.2–1.4 mm lata.

Suffrutescent perennial herbs; caudex short, simple or branched. Stems several from caudex, unbranched, 4–8(–20) cm long, leafless below and covered with persistent, imbricate, appressed, brown, petiolar remains of previous years, leafy above. Leaves oblong to ovate, 3–8(–10) mm long, 2–3 mm wide, obtuse to subacute at apex, abruptly ending in a thick, brown, persistent petiolar base, entire, ciliate, the upper surface glabrous, the lower sparsely pubescent with dendritic trichomes but soon glabrescent. Inflorescences ebracteate corymbose racemes, slightly elongated in fruit; rachis sparsely to densely pubescent with furcate to dendritic trichomes; fruiting pedicels divaricate, usually straight, 4–9(–11) mm long, pubescent. Sepals erect, oblong, subsaccate, 4–5 mm long, ca.



FIGURE 2. Holotype of *Draba cocuyana*. Scale bar = 1 cm.

2.5 mm wide, yellow, sparsely pubescent. Petals broadly obovate, 6–7 mm long, ca. 3.5 mm wide, bright yellow. Filaments erect, ca. 4.5 mm long; anthers oblong, ca. 1 mm long. Nectar glands confluent, subtending bases of all filaments. Fruits elliptic to subovate, flattened parallel to septum, (6–)8–12 mm long, (3.5–)4.5–5.5 mm wide, glabrous; septum complete, membranaceous; styles slender, 1.5–2.7 mm long. Seeds 4 to 7 per locule, broadly ovate, compressed, 1.6–1.8 mm long, 1.2–1.4 mm wide, brown, reticulate.

TYPE. Colombia, Depto. Boyacá, Sierra Nevada del Cocuy, Valle de los Corallitos, in peaty rock crevices, ca. 4000 m alt., 31 July 1957, *P. J. Grubb, B. A. B. Curry, & A. Fernández-Pérez 188* (holotype, US!; isotype, MSC!).

ADDITIONAL SPECIMENS EXAMINED. **Colombia.** DEPTO. BOYACÁ: Sierra Nevada del Cocuy, W face of Boquerón de Cusiri, *Grubb, Curry, & Fernández-Pérez 831* (US); Sierra Nevada del Cocuy, Quebrada Bocatoma, *Cleef & Florschütz 5644* (US).

Draba cocuyana is most closely related to *D. litamo* L. Uribe, resembling it in many features of habit, leaves, flowers, and fruits. Both species are known in Colombia as “litamo real” and are extensively collected for alleged medicinal purposes. A note on the holotype reads: “a potion made of whole plant in boiling water used to relieve pain and prolong life.” García-Barriga (1974) stated that *D. litamo* is greatly demanded in Colombia for medicinal properties and is used even against cancer. The differences between the two species can hardly be recognized by those who collect them for such use. Therefore, both species may well be endangered.

Draba cocuyana is easily distinguished from *D. litamo* in having ebracteate inflorescences, glabrous fruits, and usually dendritic trichomes on the inflo-

rescence rachis, pedicels, and lower leaf surfaces (see FIGURE 3a). *Draba litamo* has bracteate inflorescences, scabrous fruits with simple trichomes, and usually simple or furcate trichomes on the rachis, pedicels, and lower leaf surfaces (see FIGURE 3b).

Both *Draba cocuyana* and *D. litamo* belong to a group of four species that Schulz (1927, 1929, 1936) recognized as sect. *Dolichostylis* (Turcz.) O. E. Schulz. This section includes the Colombian *D. schultzei* O. E. Schulz and the Venezuelan *D. empetroides* Brandt, Gilg, & O. E. Schulz, *D. lindenii* (W. J. Hooker) Linden ex Sprague, and *D. arbuscula* J. D. Hooker. The last species also grows in the Sierra Nevada de Santa Marta, Colombia. Unlike most of Schulz's (1936) other sections of *Draba*, sect. *Dolichostylis* is well defined and evidently monophyletic. Its six species can be distinguished as follows.

KEY TO THE SPECIES OF SECTION DOLICHOSTYLIS

- A. Styles (5-)8-12(-17) mm long; pedicels (1-)1.5-2.5(-3.5) cm long; leaves glabrous. *D. lindenii*.
- A. Styles 0.75-3 mm long; pedicels 0.3-1(-1.4) cm long; leaves variously pubescent.
 - B. Leaves narrowly linear, conspicuously ciliate; styles 2-3 mm long. *D. schultzei*.
 - B. Leaves ovate to narrowly oblong, nonciliate to ciliate; styles usually less than 2 mm long.
 - C. Fruits with long-stalked stellate trichomes. *D. empetroides*.
 - C. Fruits glabrous or scabrous with simple or furcate trichomes.
 - D. Leaves canescent, tomentose, almost exclusively with dendritic trichomes. *D. arbuscula*.
 - D. Leaves neither canescent nor tomentose, with simple, furcate, or dendritic trichomes.
 - E. Inflorescences ebracteate; fruits glabrous; leaves and pedicels with dendritic trichomes. *D. cocuyana*.
 - E. Inflorescences bracteate; fruits scabrous; leaves and pedicels with both simple and furcate trichomes. *D. litamo*.

Draba ecuadoriana Al-Shehbaz, nom. nov.

Based on *Draba affinis* J. D. Hooker, Fl. Antarct. 2: 235. 1845; non *D. affinis* Host, Fl. Austr. 2: 238. 1831; non *D. affinis* Hoppe in Sturm, Deutschl. Fl. I, Abt. 14(Heft 60). 1833; non *D. affinis* Ledeb. Fl. Ross. 1: 148. 1842.

As shown above, the Ecuadorian *Draba affinis* J. D. Hooker is a later homonym of three binomials that represent minor variants of the highly polymorphic European *D. aizoides* L. and *D. alpina* L.

Draba pseudocheiranthoides Al-Shehbaz, sp. nov.

FIGURE 4.

Planta perennis, caudicibus crassis, petiolis foliorum emortuorum persistentibus; caulis erectis, 15-46 cm longis. Folia basalia rosulata, anguste oblanceolata, remote serrulata, ciliata, 3-8 cm longa, 4-6 mm lata, pilis simplicibus et furcatibus. Inflorescentia bracteata, multiflora; pedicelli fructiferi divaricati, (5-)8-12(-17) mm longi. Sepala oblonga, 2-3 mm longa. Petala flava, obovata, subemarginata, 5.5-7 mm longa, 2-2.5(-3) mm lata; filamenta 2-2.5 mm longa;

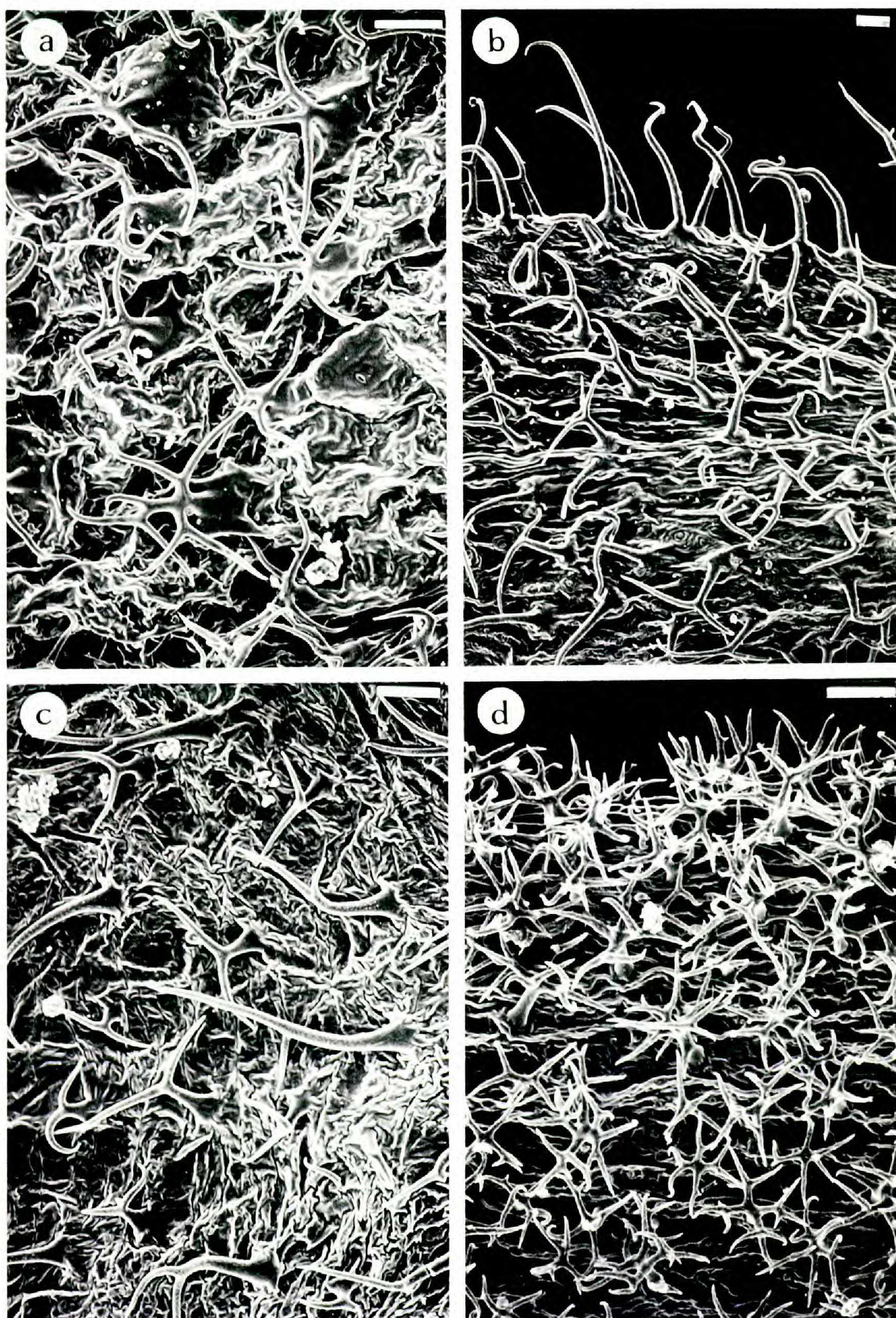


FIGURE 3. Leaf surfaces of *Draba*: a, *D. cocuyana* (holotype), lower surface; b, *D. litamo* (Grubb *et al.* 834, us), lower surface; c, *D. pseudocheiranthoides* (isotype), upper surface; d, *D. cheiranthoides* (Cuatrecasas & Castañeda 24610, us), upper surface. Scale bars = 100 μ m.

anthera oblonga, 0.6–0.7 mm longa. Siliqua ovata, glabra, valde compressa, 5–8 mm longa, (2–)3–4(–5) mm lata; locula 1 vel 2 sperma; stylus 0.6–1 mm longus. Semina valde compressa, brunnea, suborbiculata, pendula, ca. 2 mm in diametro.

Perennial caespitose herbs; caudex thick, unbranched, covered with petioles of previous years. Stems erect, simple or branched above, 15–46 cm long, softly pubescent with simple and short-stalked, submalpighiaceus, furcate trichomes. Basal leaves rosulate, narrowly oblanceolate, 3–8 cm long, 4–6 mm wide, subacute at apex, attenuate at base, ciliate, serrulate, glabrescent below, moderately pubescent above with simple and furcate, stalked trichomes. Cauline leaves similar to basal, progressively reduced in size upward. Inflorescences corymbose racemes, elongated in fruit, bracteate throughout; fruiting pedicels straight, divaricate, (5–)8–12(–17) mm long. Sepals erect, oblong, 2–3 mm long, scarious at margin, green to yellow, sparsely pubescent. Petals obovate, attenuate to short clawlike base, 5.5–7 mm long, 2–2.5(–3) mm wide, subemarginate, bright yellow. Filaments erect, 2–2.5 mm long, yellow; anthers oblong, 0.6–0.7 mm long. Fruits ovate, strongly compressed parallel to septum, 5–8 mm long, (2–)3–4(–5) mm wide; valves glabrous, obscurely nerved; septum complete, membranaceous; styles 0.6–1 mm long. Seeds 1 or 2 per locule, pendulous, suborbicular, strongly compressed, ca. 2 mm in diameter, brown.

TYPE. Colombia, Depto. Magdalena, Sierra Nevada de Santa Marta, Río Sevilla, 3570–3840 m alt., 28 Jan. 1959, *H. G. Barclay & P. Juajibioy* 6733 (holotype, GH!; isotype, MO!).

ADDITIONAL SPECIMENS EXAMINED. **Colombia.** DEPTO. MAGDALENA: Sierra Nevada de Santa Marta, S of Laguna Río Frío, *Kirkbride & Forero* 1793 (GH, NY, US); Río Sevilla, *Barclay & Juajibioy* 6544 (GH, MO), 6667 (GH, MO).

Draba pseudocheiranthoides is a very close relative of—and can be easily confused with—*D. cheiranthoides* J. D. Hooker. Both species grow in the same mountain range, the Sierra Nevada de Santa Marta, but it is not known if they are sympatric. The new species is easily distinguished from *D. cheiranthoides* in having ciliate, noncanescent leaves that are glabrescent on the lower surface and pubescent on the upper with a mixture of simple and furcate trichomes (see FIGURE 3c), as well as in having glabrous fruits, bracteate inflorescences, and pubescent stems with a mixture of simple and submalpighiaceus furcate trichomes. On the other hand, *D. cheiranthoides* has nonciliate, canescent leaves that are densely pubescent on both surfaces with dendritic trichomes (FIGURE 3d), scabrous fruits with minute simple or rarely furcate trichomes, ebracteate to rarely bracteate inflorescences, and pubescent stems with dendritic trichomes. The two species are somewhat similar in their overall leaf, flower, and fruit morphology, but the differences above strongly support their recognition at the specific level.

Draba pseudocheiranthoides belongs to a small group of species that Schulz (1927, 1936) placed in sect. *Chamaegongyle* O. E. Schulz. As shown by Al-Shehbaz (1987), however, Schulz's sectional classification of *Draba* is controversial, and a thorough reevaluation of his sectional boundaries is needed. Two



FIGURE 4. Isotype of *Draba pseudocheiranthoides*. Scale bar = 1 cm.



FIGURE 5. Holotype of *Draba ritacuvana*. Scale bar = 1 cm.

recently described Colombian species, *D. cryophila* Cuatr. (Cuatrecasas, 1972) and *D. hammenii* Cuatr. & Cleef (Cuatrecasas & Cleef, 1978), should also be assigned to this group.

Draba ritacuvana Al-Shehbaz, sp. nov.

FIGURE 5.

Herba perenna caespitosa, caudicibus crassis brevibus, ramis lateralibus tenuibus basibus foliorum emortuorum instructis. Caules simplices, 1.2–4 cm longi, foliis paucis. Folia basalia rosulata, numerosa, late obovata vel suborbiculata, rotundata, crenato-dentata, ciliata, sessilis, 7–15 mm longa, 4–12 mm lata, sparse pubescentia vel glabrescentia, pilis simplicibus vel stipitato-furcatis. Inflorescentia bracteata; pedicelli fructiferi divaricati, recti, 4–5 mm longi. Sepala viridia, late ovata, 4–4.5 mm longa, 2–3 mm lata. Petala flava. Siliqua

elliptica, compressa, 8–10 mm longa, 4–4.5 mm lata, subhirsuta, pilis simplicibus vel furcatis usque ad 0.4 mm longis; stylus 0.7–0.8 mm longus. Semina ovata, compressa, numerosa, biseriata, atrobrunnea, 1–1.1 mm longa, 0.7–0.8 mm lata.

Cespitose perennial herbs; caudex short, thick, with the slender, spreading lateral branches covered with leaf bases of previous years, each terminating in a rosette. Flowering stems simple, 1.2–4 cm long. Basal leaves numerous, forming rosettes, sessile, broadly obovate to suborbicular, 7–15 mm long, 4–12 mm wide, rounded at apex, crenate-dentate, ciliate, glabrescent to sparsely pubescent with mixture of simple and furcate-stalked trichomes; cauline leaves few, sessile, much smaller. Inflorescences bracteate racemes, slightly elongated in fruit; fruiting pedicels straight, divaricate, 4–5 mm long, pubescent. Sepals broadly ovate, nonsaccate at base, 4–4.5 mm long, 2–3 mm wide, green, sparsely pubescent. Petals broadly obovate, 4.5–5 mm long, 3–3.5 mm wide, yellow. Filaments 1.6–2 mm long; anthers ovate, ca. 0.5 mm long. Fruits elliptic, flattened parallel to septum, 8–10 mm long, 4–4.5 mm wide, subhirsute with simple and furcate trichomes to 0.4 mm long; septum complete; styles 0.7–0.8 mm long. Seeds many in each locule, biserially arranged, ovate, compressed, 1–1.1 mm long, 0.7–0.8 mm wide, dark brown to blackish.

TYPE. Colombia, Depto. Boyacá, Cordillera Oriental, Sierra Nevada del Cocuy, Alto Ritacuva, 11 April 1959, *H. G. Barclay & P. Juajibioy 7323-A* (holotype, GH!; isotype, MO!).

ADDITIONAL SPECIMENS EXAMINED. **Colombia.** ARAUCA: Sierra Nevada del Cocuy, Cabeceras de la Quebrada El Playón, Patio Bolos, 2.5 km S of Alto La Plaza, *Cleef 8883, 8991* (both GH). BOYACÁ: Sierra Nevada del Cocuy, below Ritacuva glacier, *Grubb, Curry, & Fernández-Pérez 291* (K).

Draba ritacuvana grows on morainal rocky slopes. It occupies an area between the dense stands of *Espeletia* and the permanent snow at an altitude of 4500–4550 m. Its nearest relative, *D. funkiana* Linden & Planchon ex Sprague, grows primarily in Venezuela and is apparently represented in Colombia by an undescribed subspecies that grows in the Sierra Nevada del Cocuy.

Draba ritacuvana is easily distinguished from *D. funkiana* in having broadly obovate to suborbicular leaves with softly pubescent surfaces and margins, subhirsute fruits 4–4.5 mm broad, and small (1–1.1 mm long) seeds that are many per locule. On the other hand, *D. funkiana* has linear-lanceolate leaves with glabrous surfaces and subsetose margins, glabrous fruits ca. 3 mm wide, and larger seeds that are usually one or two per locule.

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